

Utility Evaluation of the Web-based “Should I start Insulin?” Patient Decision Aid for Patients with Type 2 Diabetes

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Introduction

>50% PDAs registered in the Decision Aid Library Inventory have some form of Internet function (Hoffman, 2013)



Expert consensus of web-based PDAs :
Additional studies are needed to test how **web-specific features** (e.g. audio voice-overs, interactive graphics, touch-screen data entry) impact patients' decision making (Hoffman, 2013)

Setting: Malaysia

- Dual-healthcare system
- Multi-cultural society
- Middle-income
- 67.8% of households were connected to the Internet in 2014
- 1/3 of users used the Internet to look for health-related information
- Insulin use is poor; T2DM prevalence at 16.6% (IDF 2014), insulin use at 7.2% (vs 36% in the US) (Letchuman 2010; CDC 2009)

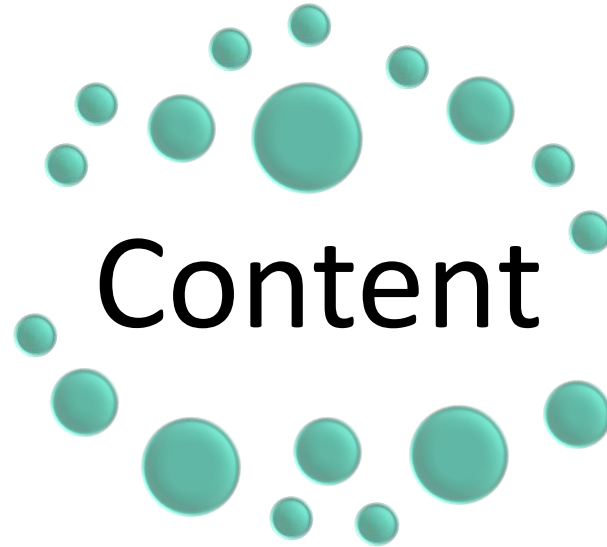


Aim

- To evaluate the utility of the “Should I Start Insulin?” web-based PDA
 - impact on decision process

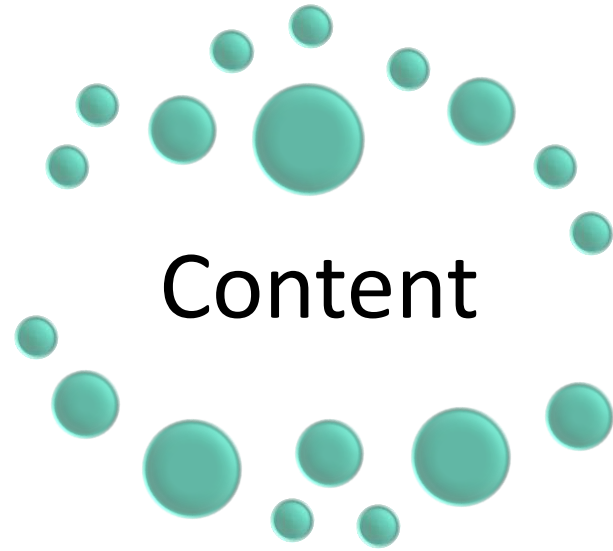


Website development



- Needs assessment
(interviews)
- Literature review
- IPDAS Quality Checklist

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- Diabetes and insulin
- Concerns about insulin
- Blood sugar and risk
- Treatment options
- Knowing your priority
- Support and decision
 - Summary print-out

Welcome To

Insulin Decision Aid Website

is meant for you if

abetes.
s not well controlled.
divised you to start insulin.

ot meant to replace the consultation.
decision with your doctor or nurse

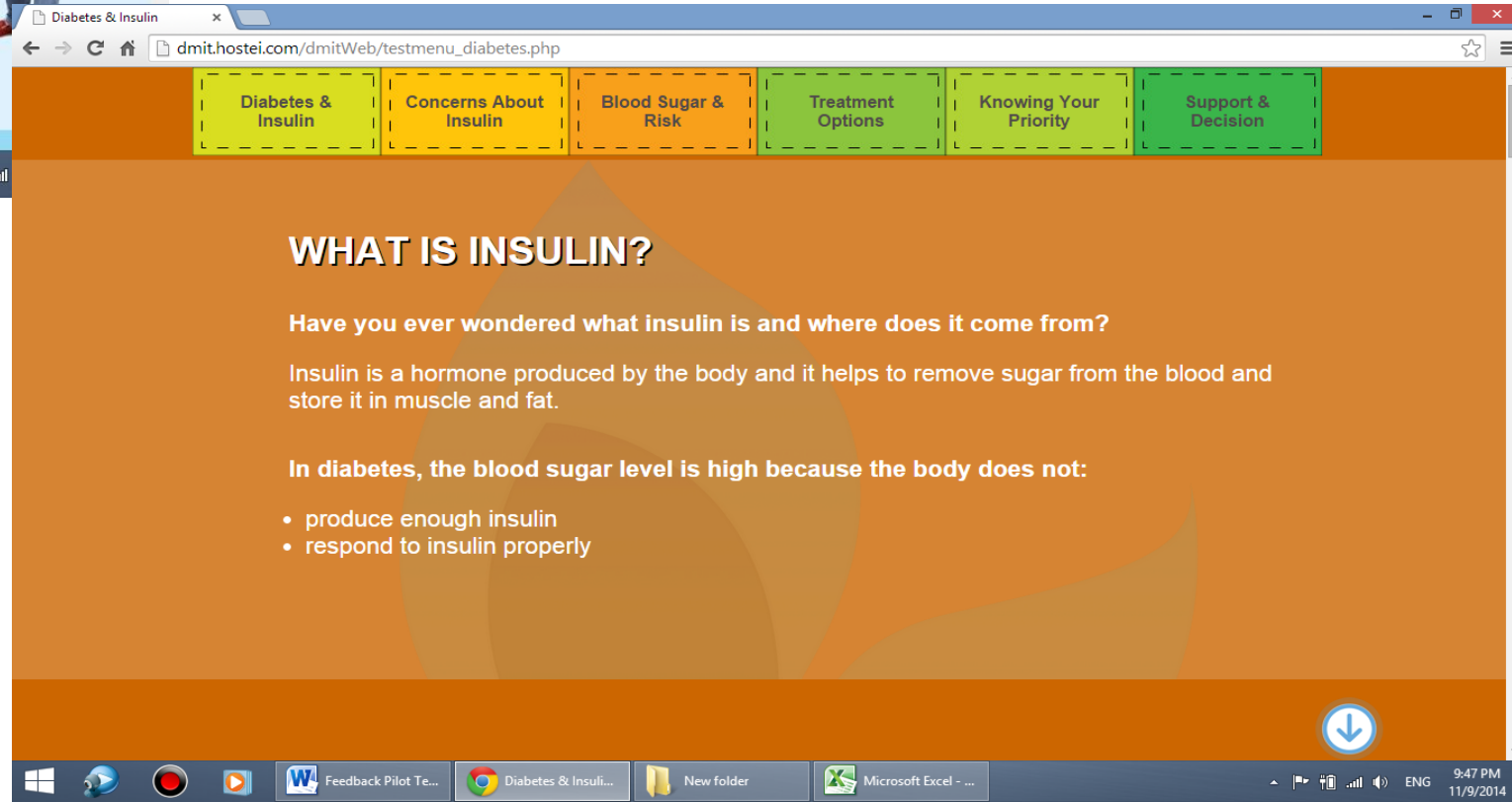
will guide you

te you systematically to make an
ut whether or not to start insulin by:
information about diabetes and insulin
k of diabetes complication
advantages and disadvantages of each

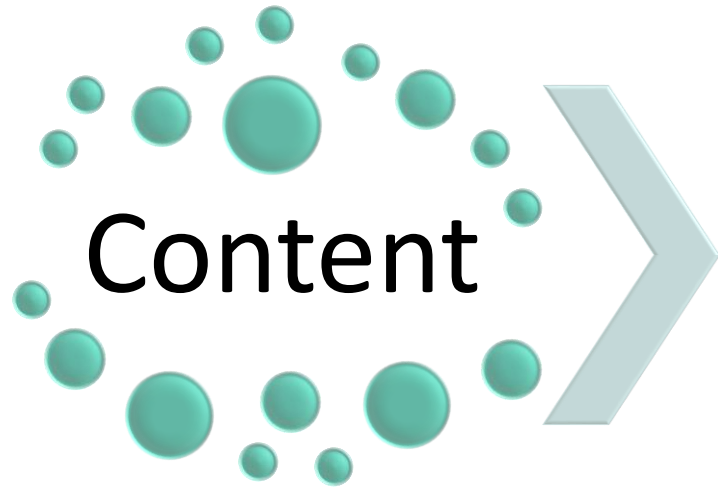
erstand what is important to you



6 Sections in the website



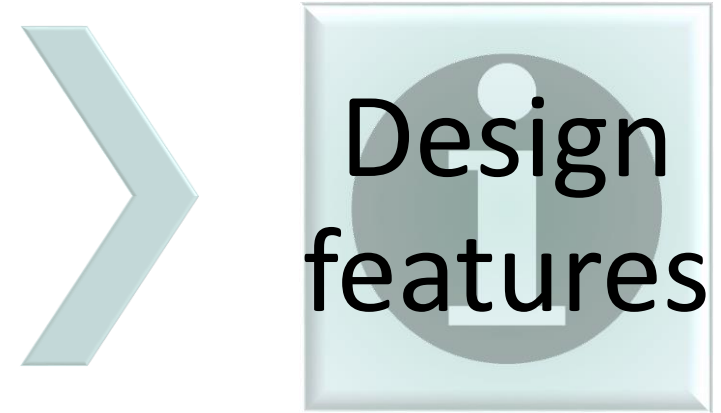
Methods 1: Website development



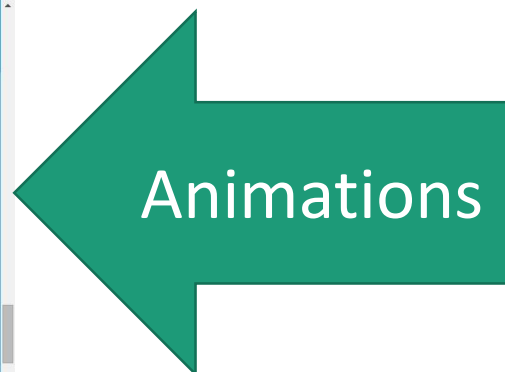
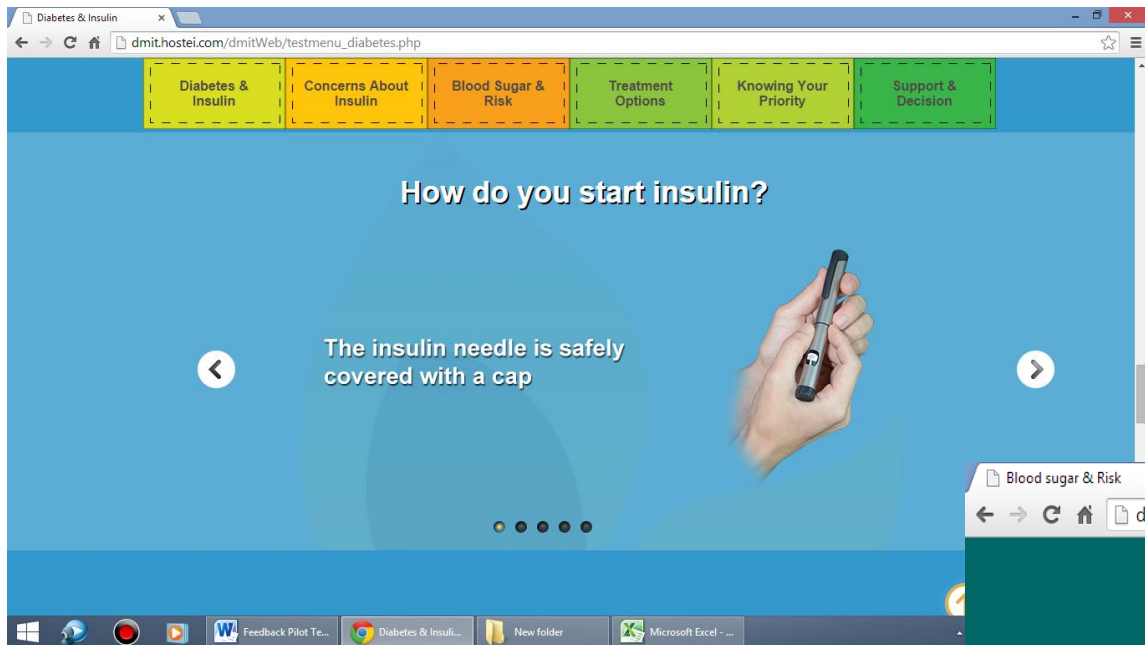
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Website sections

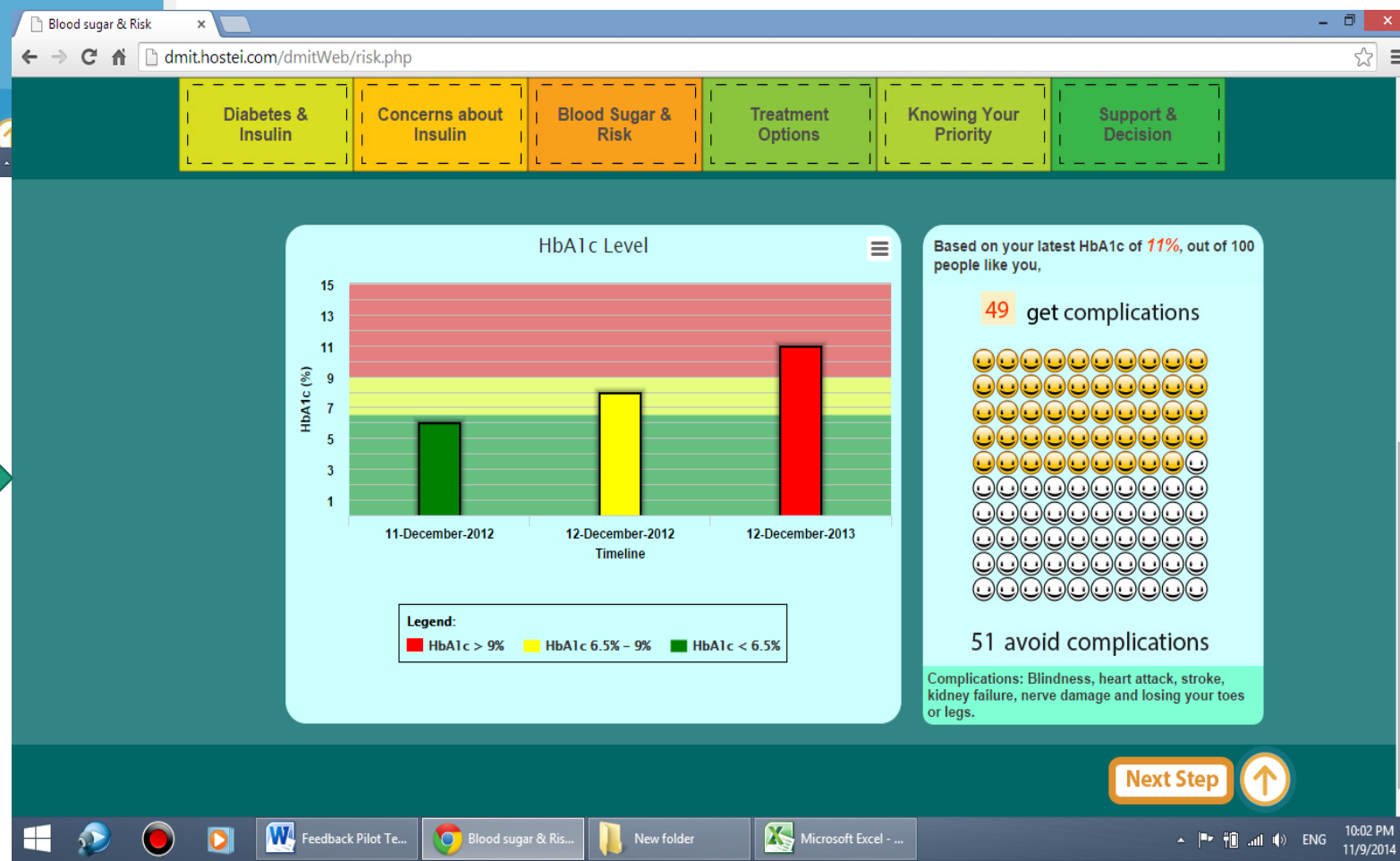
- Diabetes and insulin
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- Animations
- Slide-by-slide scrolling
- Personalized HbA1c and complication risk charts
- Attribute selectable treatment options info
- Drag-and-drop concerns



Personalised HbA1c and complications risk chart



Methods: Utility testing

- **Design:** Qualitative, pragmatic methodology
- **Sample:** Patients with type 2 diabetes at the outpatient clinic of the University of Malaya Medical Centre (UMMC), Malaysia; advised to start insulin; English-literate; experience with IT
- **Sampling:** Convenience sampling at UMMC outpatient clinic
- **Data collection:**
 - **Pre-post questionnaire** (demographics, website usability and utility ratings)
 - **Retrospective think aloud:** Computer screen movement + facial expressions recorded simultaneously → interview on users' views and experiences while watching playback

Methods (continued)

- Website revision
 - Same-day field notes
 - Framework analysis based on interview
 - Research team consensus meeting
- Cycle repeated until no major issues emerged (3 cycles)

Results

- Three rounds of website testing with 13 patients (n=6, 4, 3)
- Age: Median 65 years
- Gender: 10 men, 3 women
- Education level: 9 secondary/diploma, 4 graduate/postgraduate degree

Diabetes & Insulin

Concerns about Insulin

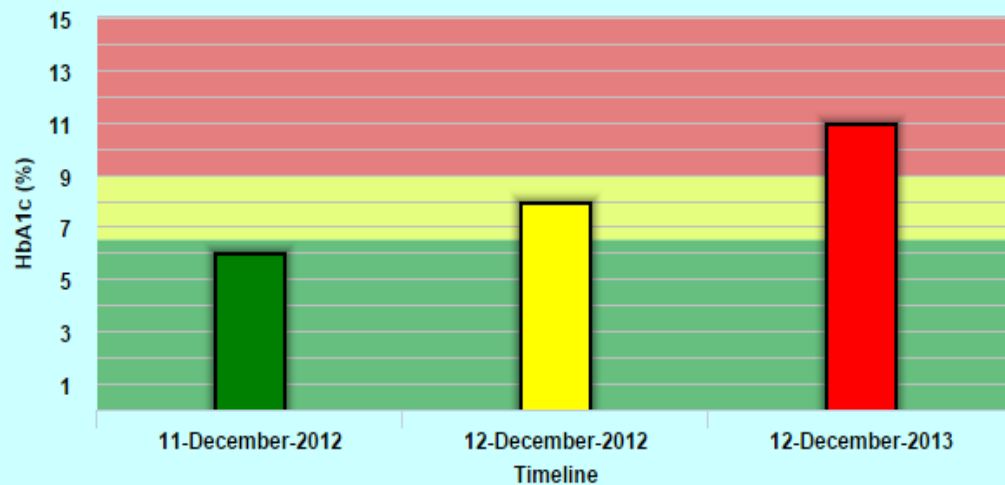
Blood Sugar & Risk

Treatment Options

Knowing Your Priority

Support & Decision

HbA1c Level

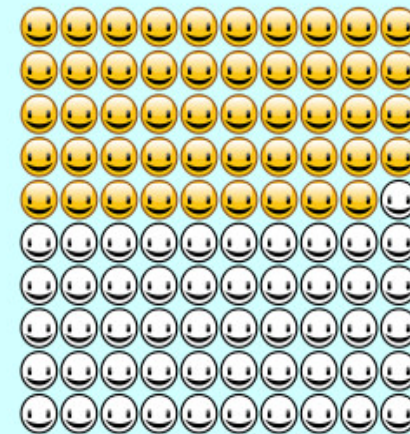


Legend:

■ HbA1c > 9% ■ HbA1c 6.5% – 9% ■ HbA1c < 6.5%

Based on your latest HbA1c of **11%**, out of 100 people like you,

49 get complications



51 avoid complications

Complications: Blindness, heart attack, stroke, kidney failure, nerve damage and losing your toes or legs.

Next Step



Utility effect 2: Deliberating between options

Treatment Options

insulinddecisionaid.com/dmitWeb/testmenu_treatmentoptions.php

Diabetes & Insulin

Concerns About Insulin

Blood Sugar & Risk

Treatment Options

Knowing Your Priority

Support & Decision

Before making a decision, it is important that you consider the advantages and disadvantages of each treatment option.

You can compare the advantages and disadvantages of each treatment option that are relevant to you by ticking the boxes below:

- ☒ HbA1c
- ☒ Diabetes complications
- ☒ Diabetes symptoms
- ☒ Hypoglycemia
- ☒ Pain
- ☒ Cost
- ☒ Weight change

Patient-selectable attributes

Utility effect 2: Deliberating between options

Treatment Options x insulindecisionaid.com/di x DMIT Insulin Website Cor x

insulindecisionaid.com/dmitWeb/testmenu_treatmentoptions.php

Diabetes & Insulin Concerns About Insulin Blood Sugar & Risk Treatment Options Knowing Your Priority Support & Decision

Advantages & Disadvantages of the Treatment Options

Treatment Option \ Concern	Make no change	Start insulin injection	Start another type of injection (non-insulin)	Use alternative treatment
HbA1c	No change or increase	Decrease by about 2%	Decrease from 0.5 to 1%	No evidence
Diabetes Complications	May develop or worsen the complications	Prevent or slow down the progression	May prevent or slow down the progression	Lack of evidence
Diabetes Symptoms	Will remain the same or get worse	Will improve	May improve	Lack of evidence
Hypoglycemia	Unknown	2 to 6 out of 10 people may have hypo; 4 to 8 may not	2 to 3 out of 10 people may have hypo; 7 to 8 may not	Lack of evidence
Pain	No	Yes	Yes	No
Cost	No added cost	Between RM80 to RM190 / month (for 10 unit / day)	RM550 to RM600 / pen	Varies
Weight Change	Unknown	May put on weight by 1 to 2 kg	Weight loss by 1 to 2 kg	Lack of evidence

Utility effect 2: Deliberating between options

- Clarifying which options were available (elimination)

It helped me to understand that I need insulin as I have taken maximum oral tablets.

Patient C, Cycle 3

- Felt the website was biased towards insulin

I think you are trying to persuade me to start insulin. Most of the information are towards that.

Patient N, Cycle 2

Utility effect 2: Deliberating between options

- The combination of Hba1c chart, the complication risk chart and the weighing scales of their values formed an evidence base for decisions

I think, the HbA1c chart, my risk and the weighing scales...gives me a summary of my results. [So I am clear] on certain terms, based on my result, why I should start insulin.

Patient W, Cycle 2

- Patients refusing insulin would reconsider

I have made up my mind (not to start insulin). But I learn quite a lot. The pics are quite scary. I think again I may consider starting insulin. But not now.

Patient N, Cycle 2

Utility effect 3: Involving others in the decision

- With family: Share the website with them

Frankly speaking, my wife will say “No, why do you want to go on insulin, it’s so troublesome”. They think its best you can do without it... You see you need to make the next person to understand that you need insulin.

Patient G, Cycle 1

- With HCP: Show the summary to the doctor

I would keep (the pdf summary) for reference and show to the doctor and discuss.

Patient C, Cycle 3

Discussion

- Personalized view of risk information
 - Simple rule-based risk score
 - the HbA1c chart and personalized information on risk → patients view it as their personal risk.
 - Elaboration Likelihood Model
 - people pay attention, actively process information more if seen as personally-relevant (Petty and Cacioppo 1990, Hoffman, Volk et al. 2013).
- But...felt they were being persuaded

Discussion

- Matrix-selectable options for options information
 - 6 (options) x 7 (attributes) = 42 item matrix
 - Strategy: allowing patients to select the attributes of interest to them, and screening out unnecessary options beforehand → Matrix reduced
 - More precise focus on their own information needs, less information to digest
- More studies are required on adapting other preference-based PDA sections (e.g. patient values elicitation) to web-based formats

Conclusion

- Interactive web functions provided tailored information according to patient preferences.
- This helped patients feel engaged with the information presented to them and they used this information when making a decision.

Acknowledgement

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References

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